Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: Whiting Oil and Gas Corporation
Well Name/Number: Watts 41-21-1H
Location: SE NE Section 21 T24N R59E
County: Richland**, MT; Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)
Long drilling time: No, 30 to 40 days drilling time.
Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill a single lateral Bakken Formation well, 20,185'MD/10,398'TVD.
Possible H2S gas production: Yes possible H2S gas, slight chance from Mississippian Formations.
In/near Class I air quality area: No Class I air quality area, in the area of review.
Air quality permit for flaring/venting (if productive): Yes, DEQ permit required if productive. If existing pipeline for H2S gas in the area, gas can be gathered or if no gathering system nearby, sweet gas or H2S gas can be flared under Board Rule 36.22.1220.

Mitigation:
__ Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:

Comments: No special concerns – using triple derrick drilling rig to drill a single lateral Bakken Formation well, 20,185'MD/10,398'TVD.

Water Quality

(possible concerns)
Salt/oil based mud: Yes, oil based invert mud system will be used for drilling the mainhole and saltwater for drilling the horizontal lateral. Freshwater and freshwater mud system will be used for drilling the surface hole.
High water table: No, no high water table anticipated.
Surface drainage leads to live water: Yes, nearest drainage is an unnamed ephemeral tributary drainage to Second Hay Creek, adjacent to the southeast corner of this location. Within this ephemeral drainage there are stock ponds.
Water well contamination: None, closest water wells are about ¾ of a mile to the west and about 5/8 of a mile to the east southeast from this location. Depth of these water wells range from 35' to 80'. Surface hole will be drilled with freshwater and freshwater mud to 2000'. Steel surface casing will be run and cemented from 2000'.
Porous/permeable soils: No, variable sandy clay soils.
Class I stream drainage: No Class I stream drainages in the area of review.

Mitigation:
X Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
__ Closed mud system
__ Off-site disposal of solids/liquids (in approved facility)

_X Other: _Semi-closed loop mud system, utilizing a lined cuttings pit for burial of drill cuttings on the wellsite. _____

Comments: _2000' of surface casing cemented to surface adequate to protect freshwater zones and will cover the base of the Fox Hills Formation.

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: _No, stream crossings anticipated. __
High erosion potential: _No, moderate cut, up to 11.6' and moderate fill, up to 10.6', required._
Loss of soil productivity: None, location to be restored after drilling well, if well is nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: _No, a very large location, 510'X425'. This size location is required to accommodate four (4) wells, watts 42-21-1H, Watts 42-21-2H, Watts 42-21-3H and Watts 42-21-4H. _
Damage to improvements: _Slight, surface use is a cultivated land. __
Conflict with existing land use/values: __Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
_X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
_X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: _Access to location will be over existing county road, #132 and existing lease road. A short access of 22' will be built off the existing lease road into this location. Oil based invert drilling fluids will be recycled. Completion fluids will be hauled to North Dakota to be used on other wells or hauled to a Class II Disposal. Drilling cuttings and mud solids will be fly ashed in the lined cuttings pit. No special concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Residence, about ½ of a mile to the south southwest from this location. Out buildings about 1/4 of a mile to the southeast from this location.
Possibility of H2S: Slight possibility of H2S.
Size of rig/length of drilling time: _Triple drilling rig/short 30 to 40 days drilling time

Mitigation:
_X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: _Adequate surface casing and operational BOP equipment should mitigate any problems. No concerns _____

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.
Proximity to recreation sites: None identified
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: No
Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Lease Tern, Whooping Crane and Piping Plover. Candidate species are the Greater Sage Grouse and the Sprague's Pipit. MTFWP Natural Heritage Tracker website indicates one (1) species of concern is Whooping Crane. NH Tracker website lists three (3) Potential Species of Concern: Chimney Swift, Eastern-Screech Owl and the Tennessee Warbler.

Mitigation:
__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other:
Comments: Private surface lands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)
Proximity to known sites None identified.
Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies)
__ Other:
Comments: Private surface lands. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation
Comments: Wildcat well, no concerns.

Remarks or Special Concerns for this site

To drill wildcat single lateral Bakken Formation well, 20,185'MD/10,398'TVD.

Summary: Evaluation of Impacts and Cumulative effects

No significant long term impacts expected, some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: April 21, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Water wells in Richland County
(subject discussed)
April 21, 2012
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Richland County
(subject discussed)

April 21, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T25N R58E
(subject discussed)

April 21, 2012
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection:_____